GEOGRAPHIC SCHOOL BULLETINS

THE NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON 6, D.C.

APRIL 4, 1960, VOLUME 38, NUMBER 25 . . . *To Know This World, Its Life*

JOSEPH NETTIS

JAPANESE smiles offered welcome to a young German touring the world (page 290)

also — MONORAILS, POLLINATION, HUDSON BAY PORT

UMI

GEOGRAPHIC SCHOOL BULLETINS

THE NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON 6, D.C.

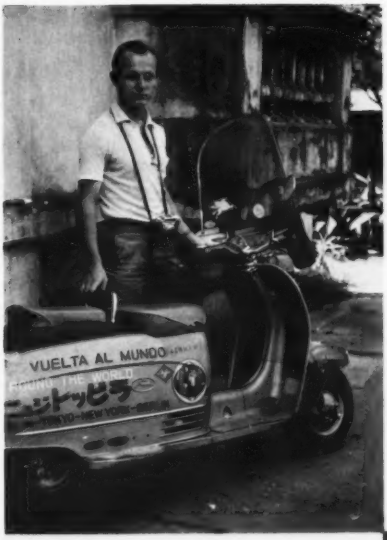
APRIL 4, 1960, VOLUME 38, NUMBER 25 . . . *To Know This World, Its Life*

JOSEPH NETTIS

JAPANESE smiles offered welcome to a young German touring the world (page 290)

also — MONORAILS, POLLINATION, HUDSON BAY PORT

UMI



About the author ...

AFTER FINISHING his schooling, Felix Nietert left Berlin—his home—three years ago with ten dollars and a battered bike. Now 24, he is still working his way around the world. He cycled 15,000 miles over Europe and Asia to Japan. With his motor scooter, a gift from the Japanese, he took passage to Chile where he began touring the Americas. Reaching Washington, D. C., he wrote this article in his sometimes shaky English, and immediately put-putted off for Alaska. So far: 85,000 miles, 45 nations. Worst experience: pushing his bike across a stove-hot desert in Pakistan. Best experience: Japan.

Even Japanese big business has a heart. The biggest company in Japan gave me the motor scooter (above) and I gave my rickety bicycle to a friend. Before starting my 4,000-mile trip through south Japan, the press club of Tokyo honored me with a special dinner. Here I saw my first geisha girls. Who hasn't heard of their famous entertainment and service? Geisha girls receive five years training in special schools to learn musical instruments, singing, and many other subjects.

So with much helpful advices from my friends I went through the countryside. I saw Kyoto, the ancient capital and religious center of Japan. I believe you can go every day of the year to a different temple. I like very much that they usually have a nice flower garden behind the temples. The way the Japanese arrange flowers is really art. Entering a big gate, I crossed a courtyard, then entered the temple (right). Everything is made of wood except the metal lamps.

UMI

Young German Sees Japan

Story and Photographs by Felix Nietert

LOOKING back, I know that I enjoyed in Japan the happiest time of my long long trip. The way I like to remember Tokyo is shown in my photograph above, with beautiful Japanese girls in kimonos on January 1. They are dressed in their traditional flowing garments to visit the Imperial Palace, allowed only on this one day of the year. Otherwise they would wear clothing like in America or my Germany.

This square is the main business center of Tokyo. In the background of my picture is the Dai-Ichi Hotel. When I first arrived in Japan I felt a little lost, because I seemed to be in a big ant colony. I didn't know even one word Japanese. But so I tried as in other Asian countries to get along with sign language. It works somehow, even though sometimes I was misunderstood. Many kindly people stopped me and tried to talk.

Some new friends took me through the bustling city on a sight-seeing bus. I became part of the 9,000,000 crowd of Tokyo, the fastest growing city in the world. All big cities of the world are someway alike, but I feel that Tokyo is extraordinary because of its friendly people.

GEOGRAPHIC SCHOOL BULLETINS Copyright © 1960 by the National Geographic Society, Melville Bell Grosvenor, President. Published each week during school months by the School Service Division, Ralph Gray, Chief. Assistants: Arthur P. Miller, Jr., Frank Sartwell, Katherine Crapster, Liva Baker. Entered as second class matter, Washington, D.C. International copyright. All rights reserved. Rates: United States, $2.00 for 30 issues (one school year); Canada, $2.25; elsewhere, $2.50. U. S. only, 3 years (90 issues), $5.00. The National Geographic Society is a nonprofit educational and scientific society established for the increase and diffusion of geographic knowledge.

everybody sitting around the table.

In the evening we went to the main street for a walk as everybody does on Christmas. Everyone seemed happy. But on the last day of the year the streets are empty. Families stay home and talk about the passed year and, according to an old custom, ring a small silver bell 108 times at midnight. The women all wear their most beautiful kimonos.

With *Omedette gozaimas* (all the best of luck) my friend Shoji Takahashi wished me well for the coming year and gave me a paper decoration for my scooter.

Then came the only moment I felt sadness in Japan—when I had to say good-by and leave these friendly people.

They told me if I saw Fujiyama from the ship I would come back. I saw it, and I believe the prophecy. Good-by, Japan. *Sayonara, Nippon.*

About Japan . . .

Area: 142,644 square miles (slightly smaller than California)
Population: 92,000,000 est. 1958 (California: 12,000,000)
Main islands: Honshu, Kyushu, Shikoku, Hokkaido
Capital: Tokyo (1959 population, including 8 suburbs: 9,100,539)
Other cities over one million: Osaka, Kyoto, Nagoya, Yokohama
Principal industries: Iron and steel, chemicals, textiles, fishing, farming, shipbuilding
Chief crop: Rice

VOLUNTEER FIRE department enjoys practice. In this manner, firemen place a man in a burning building. Fire is a constant threat in a nation of wood - and - paper houses.

UMI

JAPANESE SANDWICH MAN carries a sign advertising a store. Make-up and elevator shoes serve to attract attention on the Ginza, Tokyo's famous central shopping street.

I spent three months in Japan and stayed all the time with Japanese families, so I really got to know their way of living and learn the language. They are not only the most friendly people I found but also among the cleanest. For example, when the men come home they first remove their Western-style shoes and walk in their wooden sandals to the bathhouse. The water is scalding hot so that I sometimes balked and didn't go into the pool but mixed my own water in the bathing tubs.

In restaurants you receive two steamed towels to wash your face and hands. Even kids at play practice cleanliness. In the streets, when they make their mud cakes, they take along their little mats and sit on them (see picture below). One never enters a Japanese home with shoes, so the children remove also their shoes during their play in the streets.

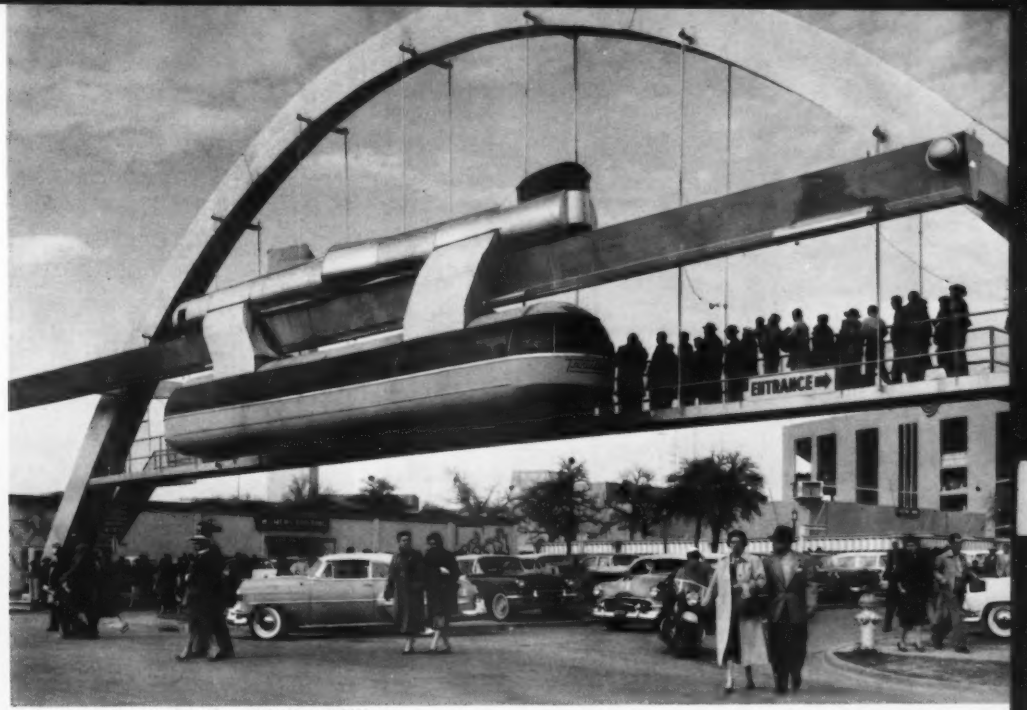
Once in south Japan I unwillingly drove my little scooter against a cow. We both got hurt and for six weeks I had heavy bandages around my knees. For first aid a doctor brought me to his home. His family soon made me forget the pains. He had two children looking like sweet dolls, but disciplined with good upbringing like all Japanese kids. Boys and girls have special festivals at the ages of 3, 5, and 7. The girls receive kimonos made by their mothers.

My friend Saburo Yokoyama invited me to his parents' home for Christmas dinner (right). I missed that they have no Christmas tree. But Japanese give each other gifts not only on Christmas but during the whole time of Christmas — New Year's and even four to six days after. I enjoyed the green tea but it makes me trouble to sit cross-legged on wooden floors. But to eat with chopsticks I got use after two weeks hard trying. The meal I liked the most is *sukiyaki*—sliced meat with vegetables and sauces cooked in the dining room with

pioneer commercial monorail is still going strong after nearly 60 years. Running from two to five cars in tandem, it has carried millions of passengers on an eight-mile trip above the banks of the Wupper River.

Other cities are getting the idea. Tokyo shuttles passengers between two zoos on a demonstration skyrail. Seattle, Washington, plans a mile-long monorail to speed visitors from downtown to its big "Century 21" Exposition in 1962.

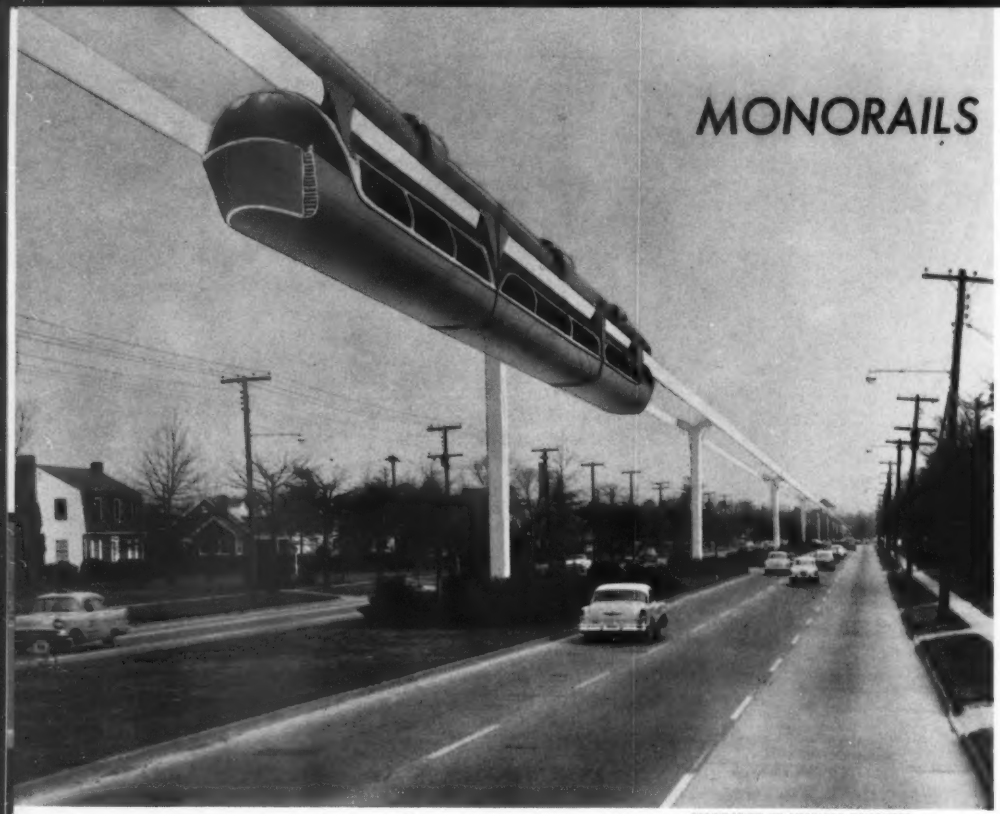
But until Seattle's goes into operation,



MONORAIL, INC.: LEFT, ASSOCIATION OF AMERICAN RAILROADS

Americans can go for a monorail ride only in the Senate's famous subway in Washington, D. C., California's Disneyland, or on a 1,000-foot monorail at the State fairgrounds in Dallas, Texas. Visitors step through an electrically operated sliding door (left), sit in molded plastic seats behind wide plexiglas windows. With a hum no louder than a modern elevator, the 55-foot *Trailblazer* eases out of its terminal (above) on eight large pneumatic tires. Horizontal wheels between guide rails keep it from swaying. Riders say it sure beats the 8:05 bus. A.P.M.

UMI



ASSOCIATION OF AMERICAN RAILROADS

ARTIST'S CONCEPTION of a commuter monorail. Designers try to woo transit authorities with two types. This "suspended" model hangs from its rail; the "supported" type rides astraddle. For power, electric, diesel, or gasoline engines can be used. Drive wheels hide beneath metal housing above coach.

MONORAILS . . . Promise or Disappointment?

MANY A CITY PLANNER grappling with growing traffic snarls daydreams of the scene at left. A sleek monorail train whisks commuters above roadbound motorists at 60 miles an hour. It stops for neither traffic lights nor intersections. Within minutes it will deposit its passengers in the heart of the city, a few blocks from their offices.

A monorail offers many advantages, especially in congested areas. It takes little ground space. Cheaper than a subway, more attractive and quieter than an elevated railway, it adds no burden to traffic as buses do. A Swedish concern has designed one that can do 220 miles an hour.

Why, then, has no United States city yet lost its heart to the beguiling monorail? Even a dream can have drawbacks. Critics cite the relatively small number of passengers each "sky car" can carry, and the monorail's difficulty in switching from track to track. "Why," they ask, "turn a railroad train upside down?"

Despite the skeptics, however, monorails are gathering steam. It's about time. Monorails were discussed before either the automobile or airplane was invented. One steam-powered model at Bradford, Pennsylvania, covered four miles at 30 miles an hour in 1878. In West Germany near Cologne, the

soms have equally elaborate methods. The milkweed, for example, operates spring traps. A bee or butterfly struggling for a foothold on the small, hanging florets may plunge a leg inside. There it is caught by a device resembling a limber dumbbell—two pollen masses joined by a springlike strand. This anklet can fertilize scores of seeds in the next flower the insect visits.

The lady's slipper uses a different kind of trap. Its flower gives the bee a road map—a spray of lines pointing to a concealed slit in the slipper's "toe." The bee rams in, sups nectar, then tries to get out the way it came.

But the entrance is closed; the petals fold inward only. After a bit of angry buzzing, the bee searches its prison and finds a small opening leading toward the slipper's "heel." As it bulls through, a stigma collects pollen from the bee's back. The anthers then deposit a load to fertilize the next flower. Only then can the bee emerge. Bees cooperate by visiting only one species of flower on a trip from the hive.

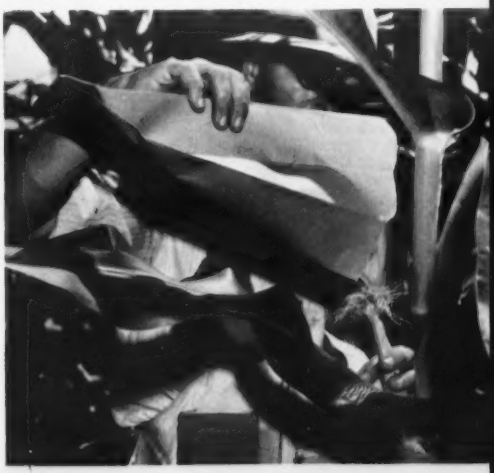
The red clover depends on bumblebees for pollination. To reach the sweet nectar, the bee thrusts its head inside the floret. One disturbed petal triggers the face-knocker, and the bee gets the old one-two. The female stigma pops up to dust the pollen off the bee's face; then the anthers smack the face and dirty it again.

Not all plants rely on insects to mate them. Some fertilize themselves. Others broadcast pollen to the wind. In summer, the air is filled with billions of tiny, invisible pollen grains.

Seen under a microscope, each grain has its own beauty. Each plant produces distinctive pollen. Some glitters like diamonds; some gleams like pearls.

The plants that rely on the wind to scatter their pollen must produce great quantities to give themselves much chance of succeeding. The corn tassel at left produces enough pollen to waste 25,000 grains for each one that reaches a "silk" or stigma to fertilize a kernel of corn. F.S.

U. S. DEPARTMENT OF AGRICULTURE



MAN REPLACES BEE—In experiments, careful scientists replace the hit-or-miss bee. Gathering pollen from the tassel (above) of a strain with desirable traits, they place it on the ear (right) of another. Hybrid types resulting from this work came into widespread use in the U.S. in the early 1930's. Since then they, and new farming methods, have almost doubled corn production per acre.

UMI

THE TRICKS OF THE BLOSSOMS

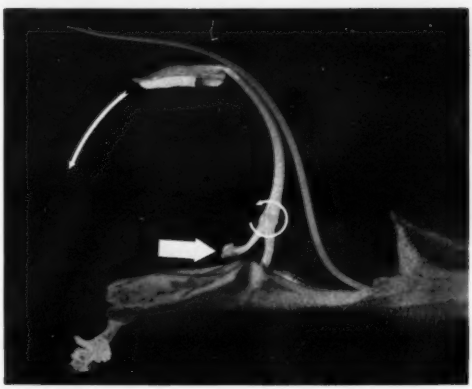
Flowers Use Back-whackers and Face-knockers on Bees

FLOWERS ARE NOT so sweet and innocent as they look.

They operate traps and swindles, and use hard-sell advertising and concealed weapons to insure pollination—the fertilization of female plant eggs by pollen from another blossom.

With far-reaching perfumes, flowers broadcast their attractions. Bright colors and pretty forms lure customers like store fronts or window displays. Built-in direction signs point toward nectar and pollen rewards. When the customers—most often bees—arrive, the flowers are ready with hidden back-whackers and face-knockers to force

PHOTOGRAPHS BY HERMANN EISENBEISS



the insect to play a role in the future of the species.

The sage blossom in these photographs has lured a bee with nectar drops onto its "landing stage." Finding little there, the bee moves farther in, pushing its head against a trigger (large arrow in lowest picture). The hinge on the pollen-bearing stamen (circular arrow) swings, dropping the pollen-holding anthers onto the bee's back (center picture), where the sticky pollen stays.

The fine filament protruding from the top of the blossom is the female stigma. While the plant is releasing pollen the stigma holds itself away from the bee's path. Later, when the eggs are ripe, it will dangle down and scratch the backs of bees as they come, pollen-coated, from other blossoms. This mechanism prevents self-pollination. Other blos-

CANADIAN NATIONAL RAILWAYS: BELOW, CANADIAN NATIONAL FILM BOARD

not mean "without vegetation." Over 760 species of colorful flowering plants blossom among green, brown, and russet mosses and lichens.

Birds abound. An occasional polar bear lumbers up the shoreline. Caribou, arctic fox, wolf, and lemming feed near-by.

Naturalists come to Churchill. Clouds of voracious mosquitoes and black flies surge from the soggy muskeg to plague them. At right, an early arrival registers at the tiny hotel. Latecomers resort to tents.

What looks like crests of foam and bits of floating ice on the bay may be sleek arctic white whales. They are belugas, members of the dolphin family weighing 1,100 to 2,000 pounds and measuring from 12 to 15 feet. Schools of 6, 8, or 10 dive gracefully, feeding on small fish in the harbor mouth while men hunt them in turn (above). Blubber is food for the sled dogs; natives enjoy whale steaks. Oil is processed at Churchill's tiny, smelly plant and exported.

The steamer *C. D. Howe* docks and prepares for its yearly call at isolated settlements around Hudson Bay. Aboard are clergymen, doctor,

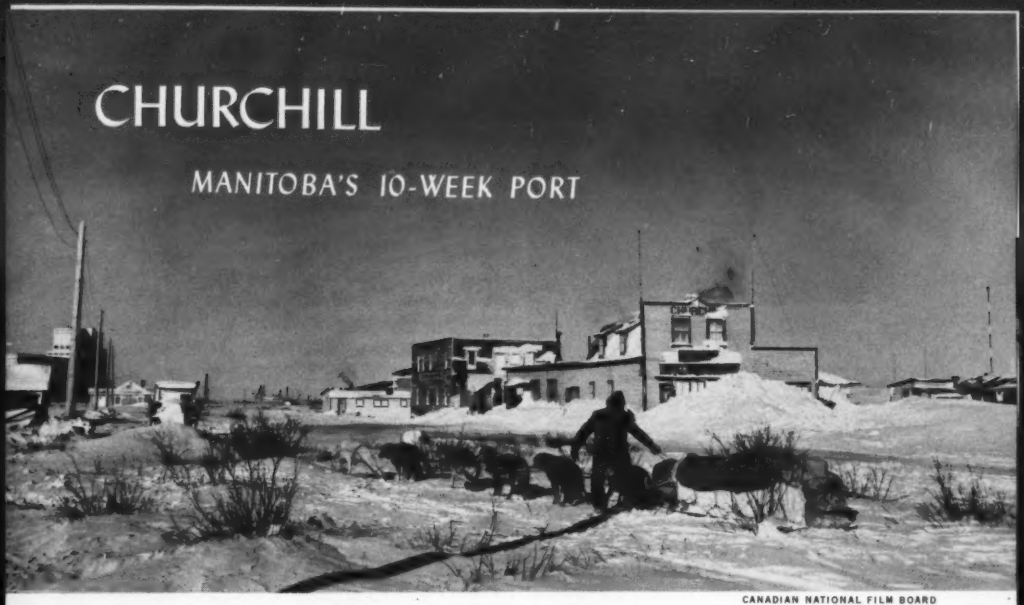
CHURCHILL'S WINDCHILL

LIFE IN THE North depends not so much on temperature alone as on *windchill*—the amount of heat lost by the body through high wind and low temperature. A windchill of 1400 freezes exposed human flesh. That can result from a zero temperature with wind 10 miles per hour, or −18° with wind 5 m.p.h. Churchill's average January windchill is 2000.

UMI

CHURCHILL

MANITOBA'S 10-WEEK PORT



CANADIAN NATIONAL FILM BOARD

BETWEEN ice-clogged Hudson Bay and the frozen Churchill River, merciless winds whip the idle Canadian port of Churchill, Manitoba. An Indian, sled loaded with supplies, starts a 150-mile trek to his trapping grounds.

A cluster of wooden building shudders in the wind—staunch Hudson's Bay Company, Royal Canadian Mounted Police post, deserted trappers' cabins, the small hotel, the Igloo Theater, the café. On a cold day, the thermometer dips to 50° below and the wind howls at 65 miles an hour.

In the distance, a massive grain elevator, silent and snow-covered, looks as out-of-place as a palm tree. Yet it is one of the chief reasons for Churchill's existence. Here, ocean-going ships can sail almost to the center of Canada to meet trains bringing the golden harvest of wheat fields from the south.

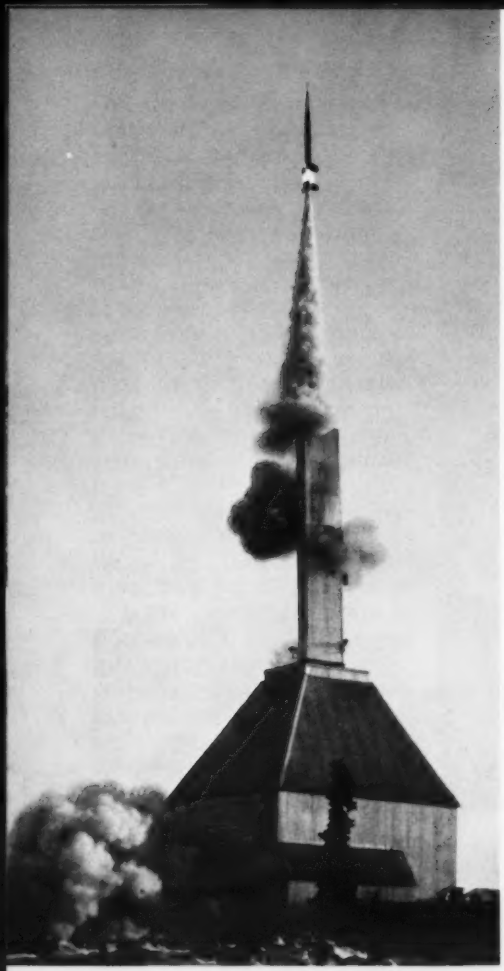
No highways lead to this port. The nearest road—known as the Great Bog—reaches the frontier town of The Pas, 440 miles southwest. Twice weekly, however, a train dubbed the Muskeg Express leaves the big city of Winnipeg, passes through rich farms and thick forests to The Pas, and then chugs across the "land of little sticks" to the edge of the Barren Grounds and Churchill—end of the line. Twice weekly, weather permitting, a commercial plane lands.

Late in June the Churchill River seethes with breaking ice harshly shouting the arrival of spring. The town is watery with slush. In July ice on Hudson Bay melts into myriad floes that pile up on shore or float out to sea and menace the short shipping season.

Churchill becomes a frenzy of activity. Workers come to man the port. Trainloads of grain rumble from the rich plains of Manitoba, Alberta, and Saskatchewan. In the ten-week season, beginning the last week in July, almost 9,000 rail carloads of wheat fill the elevator. Freighters bring tractors, toys, steel, glass, cement, pipe, and cars from England, France, Germany, Chile. Massive spouts load three ships at a time, pouring over 16,000,000 bushels of grain into the empty holds.

Freighters rock in the windy bay, impatiently waiting for berths. The ice-specked route through Hudson Strait to Britain and the Channel ports is shorter by about 1,000 miles than the passage from Montreal. Grain from Canada's Prairie Provinces ships cheaper through Churchill than via the St. Lawrence.

While commerce flowers, the Barrens bloom. Barren means "treeless;" it does



dentist, staples, mail, and perhaps a transferring Mountie and his wife.

Far north to most Canadians, Churchill is the "civilized south" to Indians, Eskimos, and white trappers coming to their summer cabins. It has long been a jumping-off point for expeditions further north.

Twice during August sight-seers from the "outside" pour off their six-day home on wheels—a Canadian National Railways tourist train. Debarking on a sunny 62° day, most wonder why they carried heavy parkas.

When, as often happens, the thermometer drops 40 degrees within two hours, parkas prove their worth.

Few visitors are able to sleep the first night, for darkness does not come. Churchill is almost in the land of the midnight sun. For wakeful eyes, there may be a display of northern lights.

In early October the ice-breaker *N. B. McLean* gingerly leads the last wallowing freighter through treacherous sheets of shifting ice. Busy Churchill becomes frozen Churchill again.

But a scant five miles away, Fort Churchill, a modern Canadian-American military testing base, prepares for a hectic season. Throughout the long winter men check specially developed clothing, weapons, and machinery against the rigorous weather. L.M.

CANADIAN NATIONAL FILM BOARD: ABOVE, AEROJET-GENERAL CORPORATION

SPACE AGE AND ICE AGE—An Aerobee-Hi rocket blasts from Fort Churchill's launching tower to investigate cosmic rays, above. At this high latitude, Earth's lines of magnetic force dip steeply and weaker cosmic rays—usually deflected elsewhere—reach the lower atmosphere. Right, the age-old method of getting drinking water. Townspeople stack blocks of ice cut from Hudson Bay to be melted over a wood- or peat-burning stove.

UMI